

2/22/10

① Solve each equation for y .

$$\textcircled{a} \quad \begin{array}{r} 3x + y = 5 \\ -3x \quad -3x \end{array}$$

$$\boxed{y = 5 - 3x}$$

$$\textcircled{b} \quad \begin{array}{r} 3x + 2y = 8 \\ -3x \quad -3x \end{array}$$

$$\begin{array}{r} 2y = 8 - 3x \\ \frac{2y}{2} = \frac{8 - 3x}{2} \\ \boxed{y = 4 - \frac{3}{2}x} \end{array}$$

$$\textcircled{c} \quad \begin{array}{r} -6y = 15 \\ \frac{-6y}{-6} \quad \frac{-6}{-6} \end{array}$$

$$\boxed{y = -2.5}$$

② Write in exponential form

$$\textcircled{a} \quad 3 \cdot 3 \cdot 3 \cdot 3$$

$$3^4$$

$$\textcircled{b} \quad 2 \cdot 2 \cdot 5 \cdot 5 \cdot 5$$

$$2^2 \cdot 5^3$$

$$\textcircled{c} \quad 7 \cdot 8 \cdot 3$$

$$7 \cdot 8 \cdot 3$$

③ Factor

$$\textcircled{a} \quad 3x + 15$$

$$3(x + 5)$$

$$\textcircled{b} \quad \text{Ans} + \text{Ans} \cdot 0.5$$

$$\text{Ans}(1 + 0.5)$$



$$\text{Ans} + \text{Ans} \cdot 0.5$$

$$\textcircled{c} \quad \text{Ans} - 0.85\text{Ans}$$

$$\text{Ans}(1 - 0.85)$$

12. Write an equation in point-slope form for a line with slope -1.2 that goes through the point $(600, 0)$. Find the y -intercept.

$$y = m(x - x_1) + y_1$$

$$y = -1.2(x - 600) + 0$$

$$y\text{-int } x=0$$

$$y\text{-int is } +720$$

13. Match the recursive routine to the equation.

a. $y = 3x + 7$ i

b. $y = -3x + 7$ iii

c. $y = 7x + 3$ ii

d. $y = -7x + 3$ iv

i. Start with 7, then apply the rule $\text{Ans} + 3$.

ii. Start with 3, then apply the rule $\text{Ans} + 7$.

iii. Start with 7, then apply the rule $\text{Ans} - 3$.

iv. Start with 3, then apply the rule $\text{Ans} - 7$.

Linear vs. Exponential growth

- ① Find the perimeter for the first 5 shapes, put your information in a table, and write an equation.



fig 0



fig 1



fig 2

$$y = \underline{4}x + \underline{4}$$

fig #	Perimeter
0	<u>4</u> > +4
1	8 > +4
2	12 > +4
3	16 > <u>+4</u>
4	20
5	24

- ② I find 32 bugs in my room one sunny March afternoon. If the population grows by 50% each day, Make a table for the next 5 days

$$32 \div 2 = 16 + 32 = 48$$

$$48 \div 2 = 16 + 48$$

$$\text{Ans} \div 2 + \text{Ans}$$

$$\text{Ans} \cdot 0.5 + \text{Ans}$$

$$\text{Ans}(1+0.5) = \text{next} \cdot (1+0.5) = \text{Next} \cdot (1+0.5)$$

$$\text{Ans}(1.5)(1.5)(1.5)$$

$$\text{Ans}(1.5)^3$$

$$y = A(1+r)^x$$

\downarrow start ($x=0$)
 \downarrow rate of increase as a decimal

days	bugs
0	32
1	48
2	72
3	108
4	162
5	243

Not Linear

$$y = 32(1+0.5)^x$$

③ Find an equation for each table.

x	y
1	7
2	10
3	13
4	16
5	19

$$y = 3x + 4$$

$$y = A(1+r)^x$$

\downarrow start \downarrow rate of growth as decimal

$$y = ab^x$$

\downarrow start \rightarrow constant multiplier

x	y
0	16
1	24
2	36
3	54
4	81

$$y = 16(1+0.5)^x$$

$$y = 16(1.5)^x$$

x	y
0	2
1	6
2	18
3	54
4	162

$$y = 2(3)^x$$

x	y
0	24
1	20
2	16
3	12
4	8

$$y = -4x + 24$$

x	y
0	24
1	12
2	6
3	3
4	1.5

> .05

> .05

> .05

> .05

x	y
0	2
1	8
2	32
3	128
4	512

> .4

> .4

> .4

> .4

$$y = 2 \cdot 4^x$$

24 €

Ans. $\cdot 0.5$ €

$$y = ab^x$$

start \downarrow
 constant multiplier \downarrow
 0.5

$$y = 24(0.5)^x$$

④ Shelby deposits \$200 in a savings account that pays 5% a year. Make a table for the first 5 years, write a recursive routine, and write an exponential equation.

$$y = A(1+r)^x$$

$$y = 200(1+0.05)^x$$

years	\$
0	200
1	
2	
3	
4	
5	

Exponential Equations

$$y = ab^x$$

↓
start

↓
constant
multiplier

$$y = A(1+r)^x$$

↓
Start

↓
rate
of
growth
as a
decimal

↑
Keeps
balance

$$y = A(1-r)^x$$

↓
start

↓
rate of
decrease
as a
decimal

↑
Keeps
balance

7.2 #1-8 (Not 7)